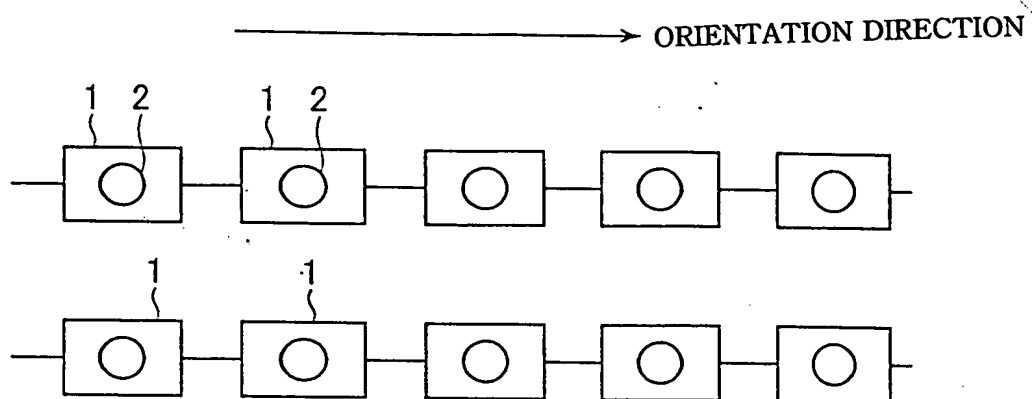
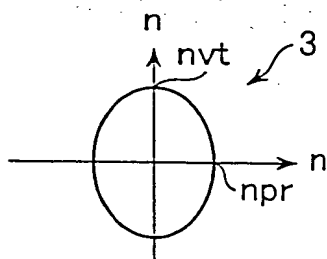


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FIG. 1



↓ MACRO-SCALE



$$\Delta n = n_{pr} - n_{vt}$$

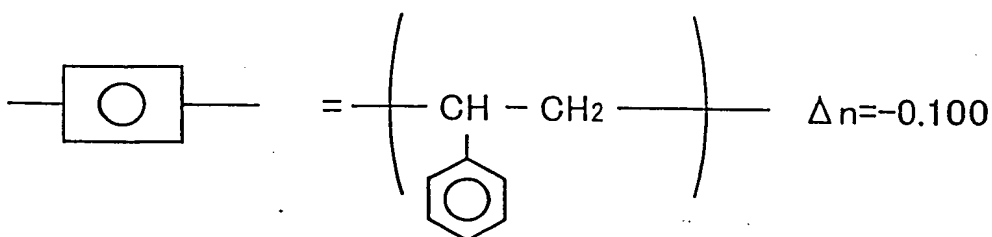
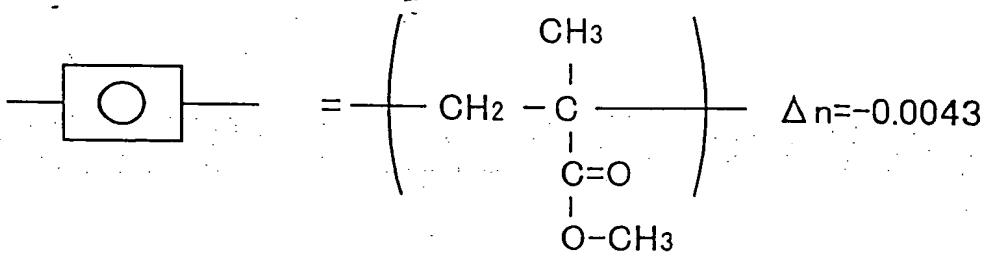
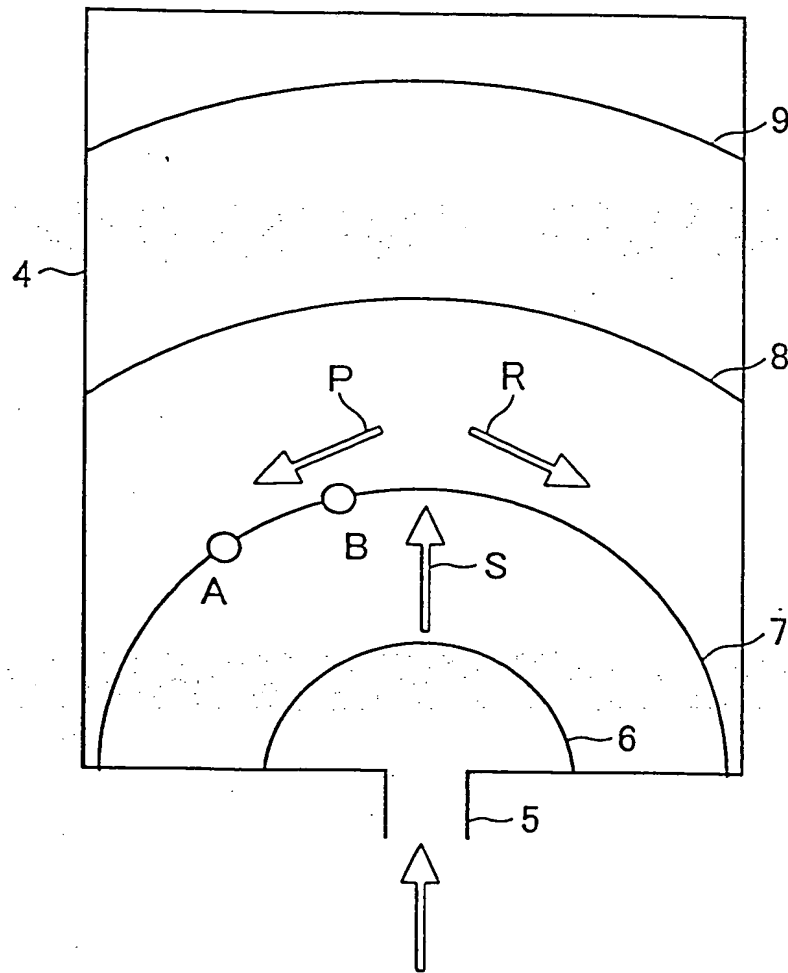


FIG. 2



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FIG. 3

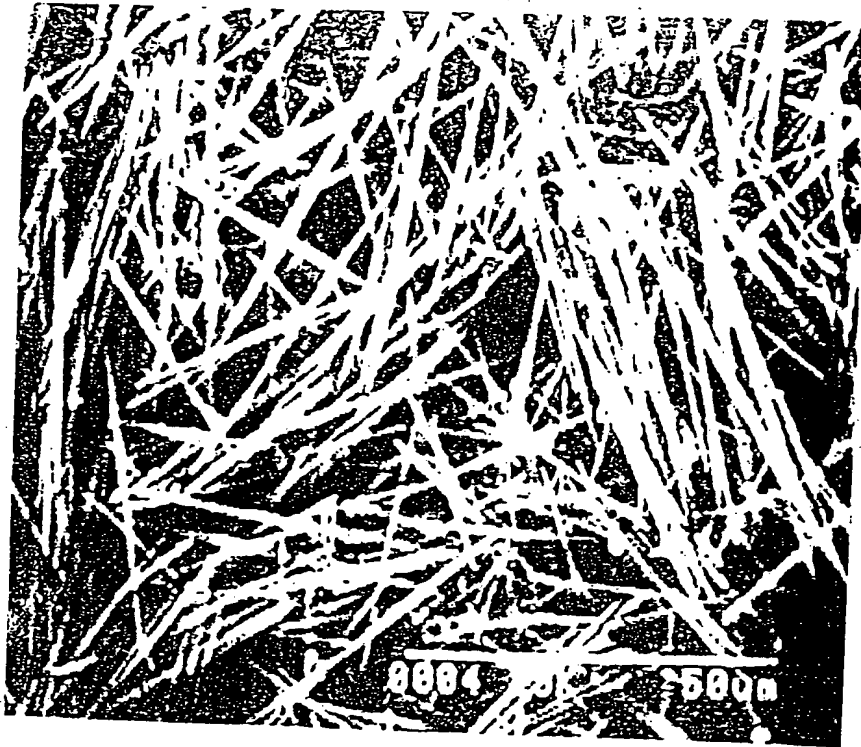


FIG. 4

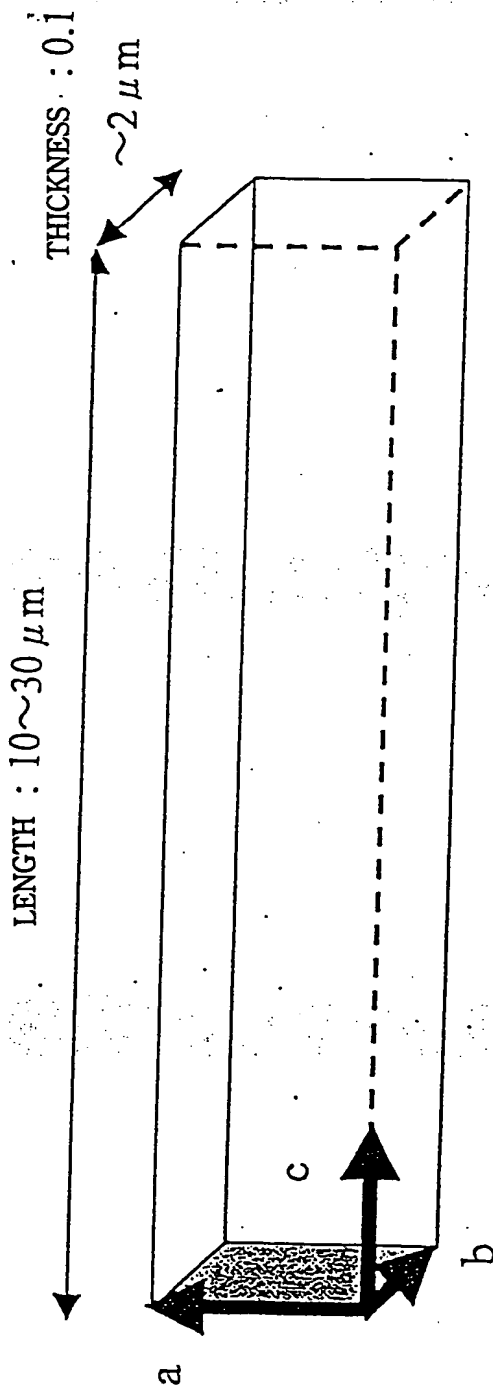
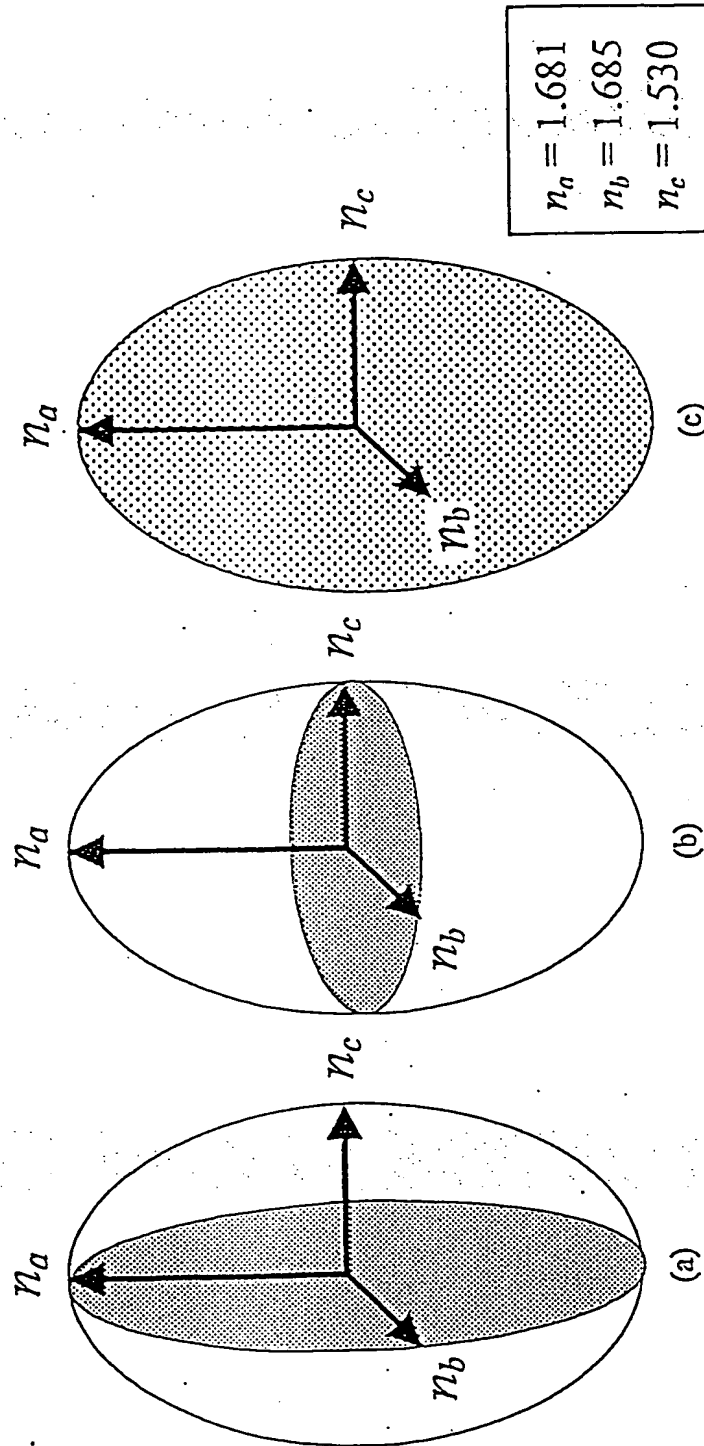
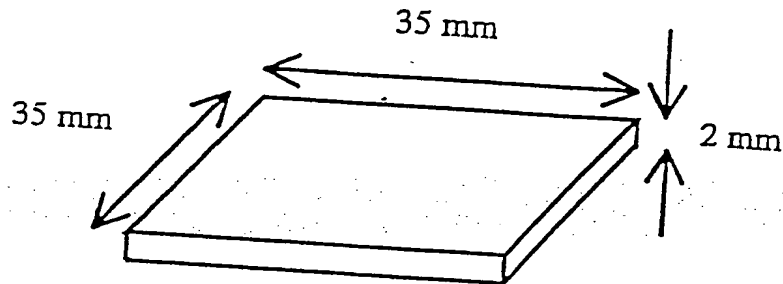


FIG. 5



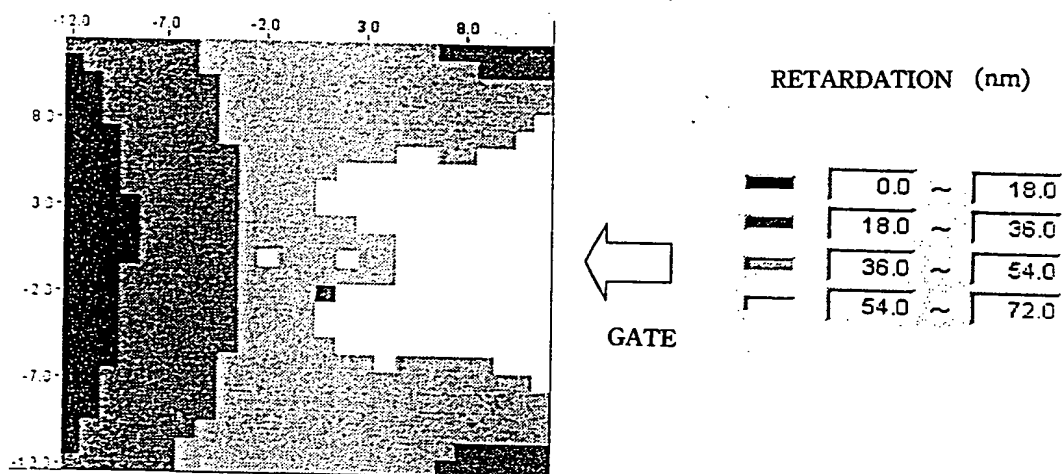
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FIG. 6

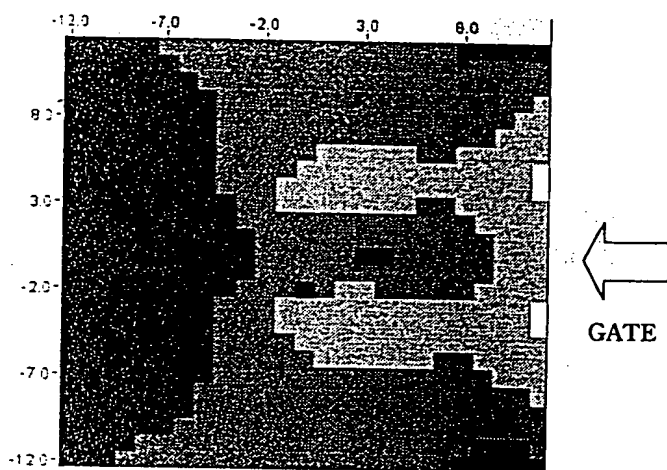


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FIG. 7



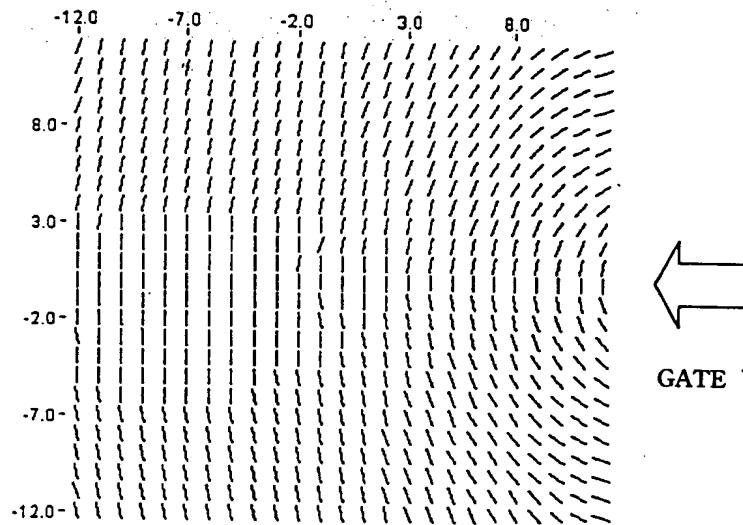
(a) ARTON



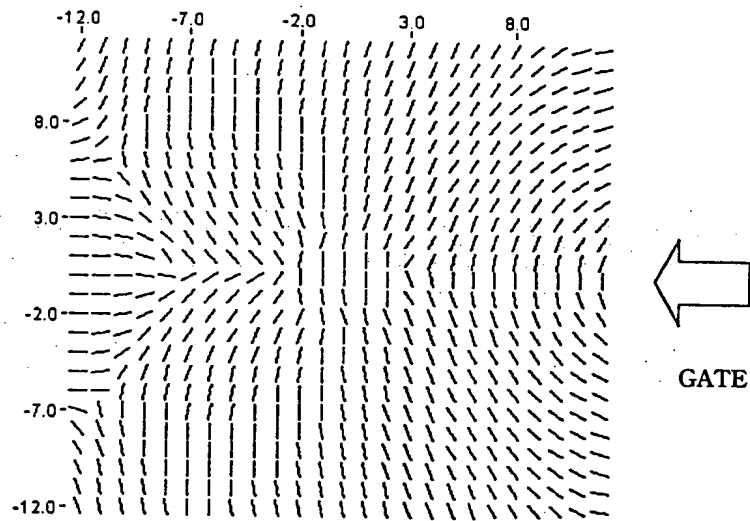
(b) NEEDLE-LIKE BASIC MAGNESIUM
 SULFATE CRYSTALS ADDED ARTON

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FIG. 8



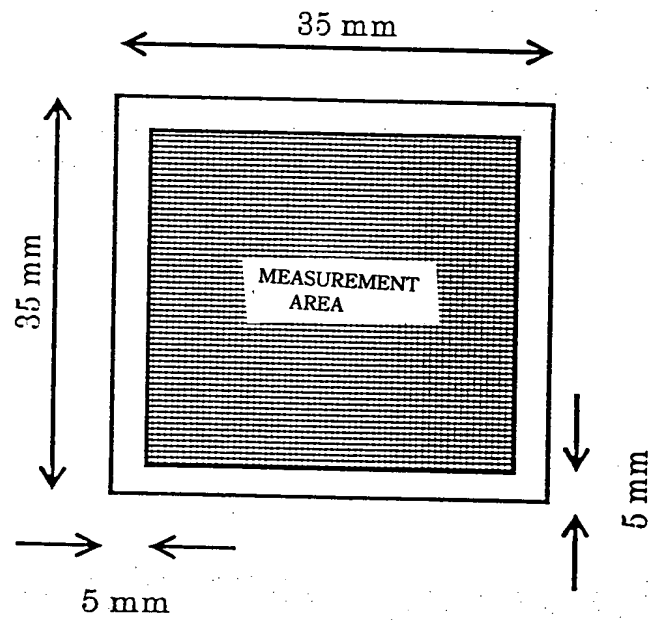
(a) ARTON



(b) NEEDLE-LIKE BASIC MAGNESIUM
SULFATE CRYSTALS ADDED ARTON

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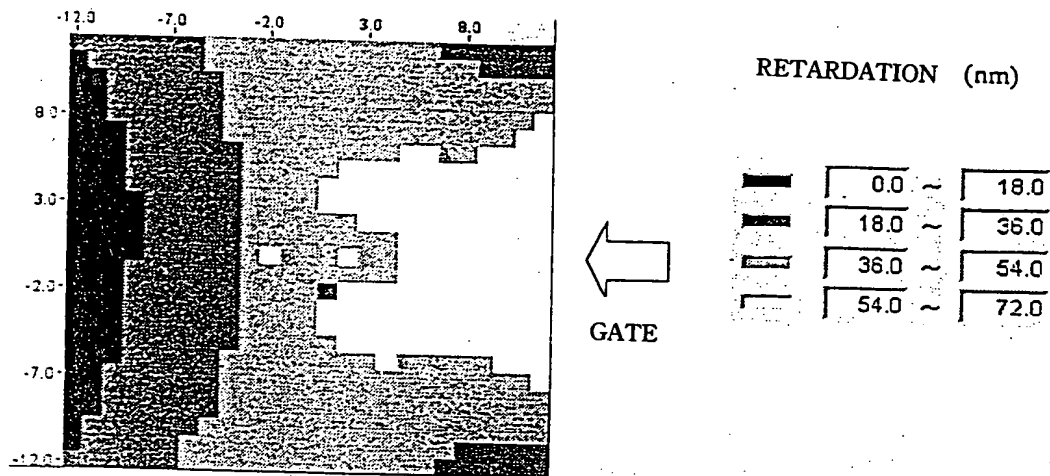
FIG. 9



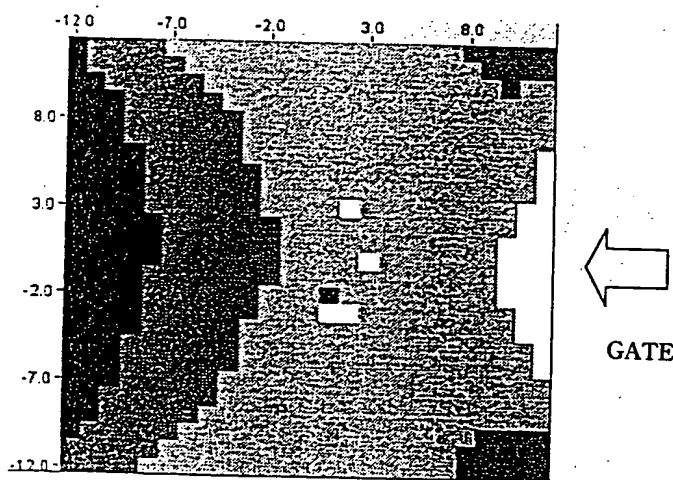
RETARDATION MEASUREMENT AREA

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FIG. 10



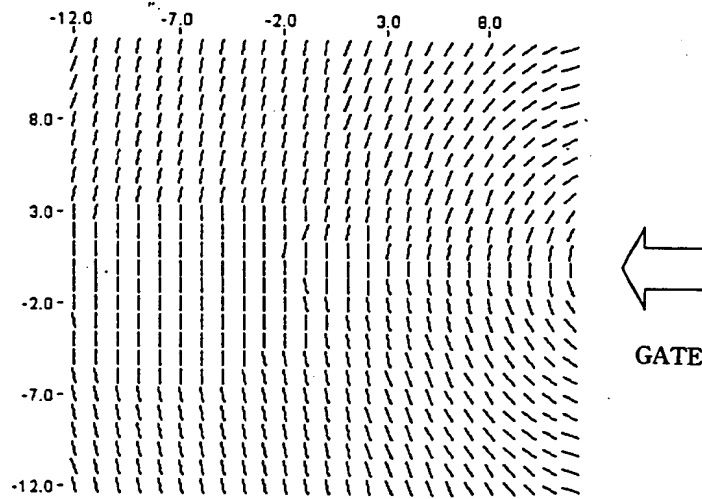
(a) ARTON



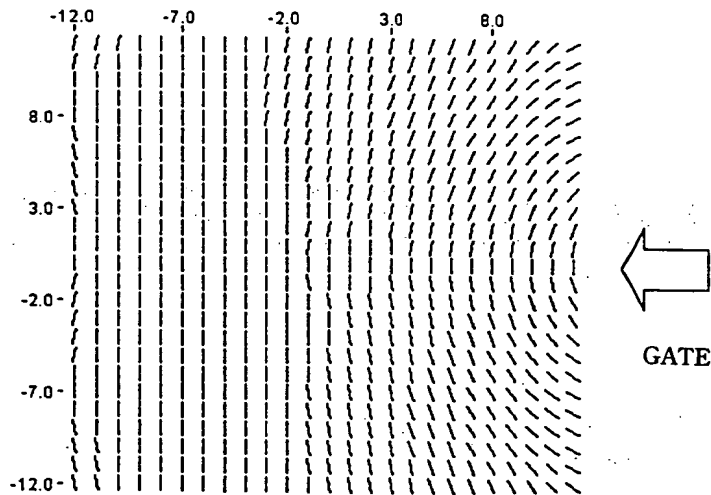
(b) NEEDLE-LIKE XONOTLITE CRYSTALS
ADDED ARTON

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FIG. 11



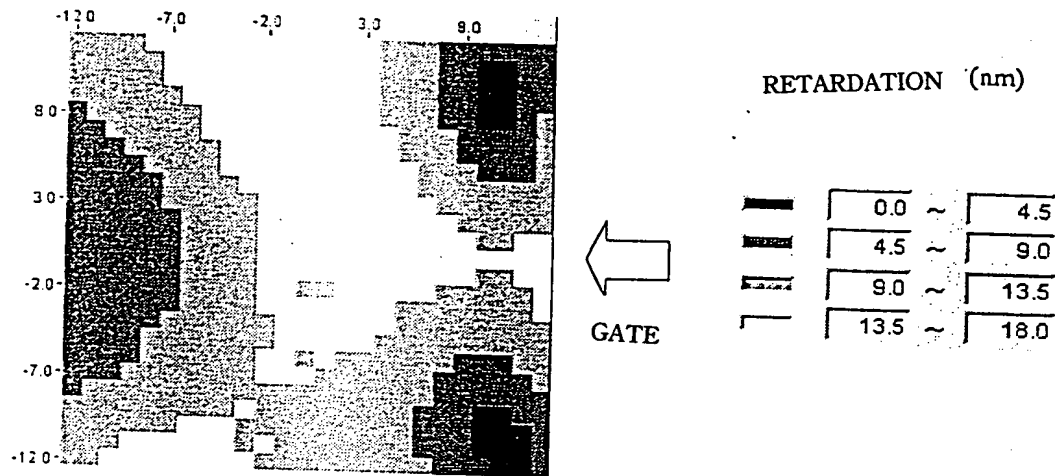
(a) ARTON



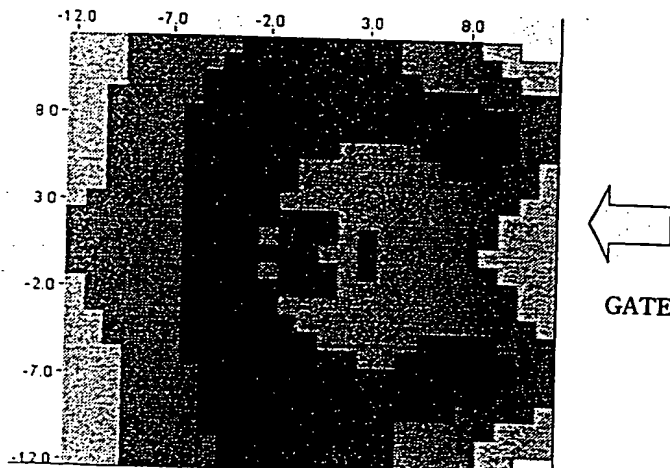
(b) NEEDLE-LIKE XONOTLITE CRYSTALS
ADDED ARTON

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FIG. 12



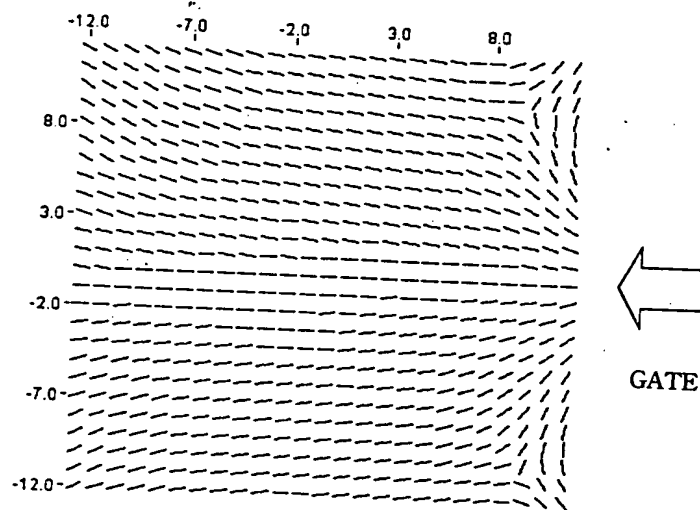
(a) POLYMETHYL METHACRYLATE



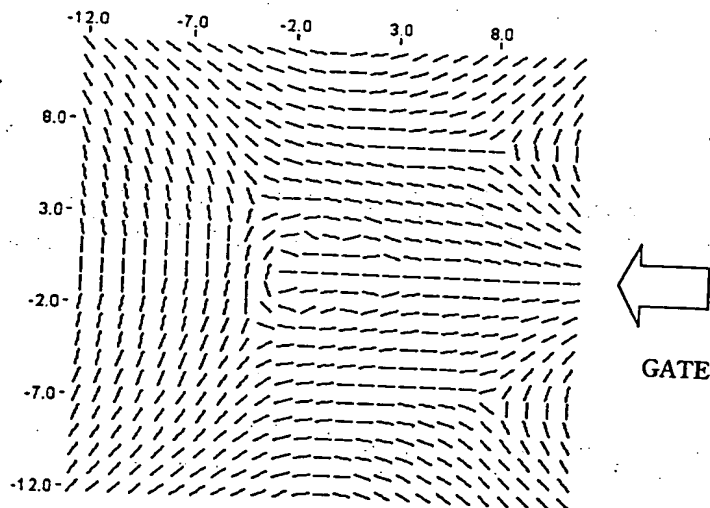
(b) NEEDLE-LIKE CALCIUM CARBONATE
 CRYSTALS ADDED POLYMETHYL
 METHACRYLATE

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FIG. 13

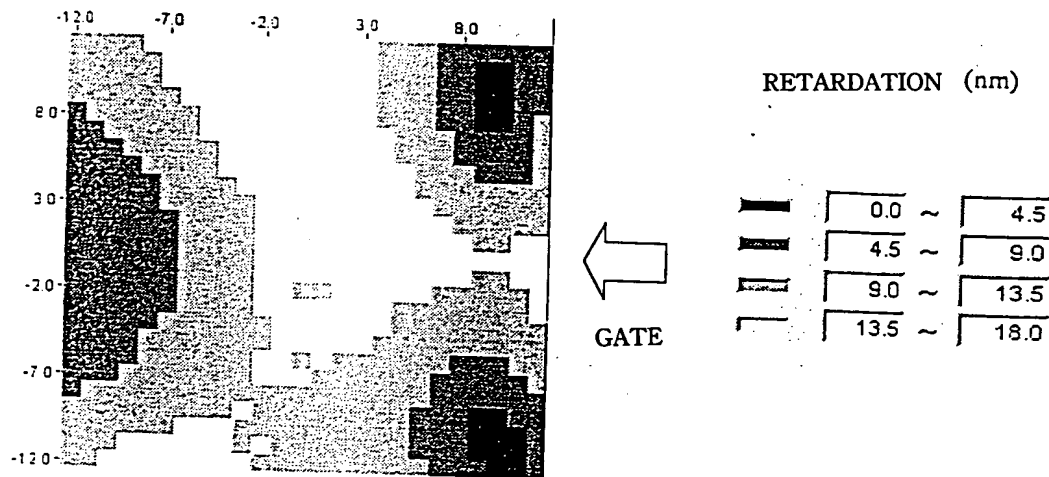


(a) POLYMETHYL METHACRYLATE

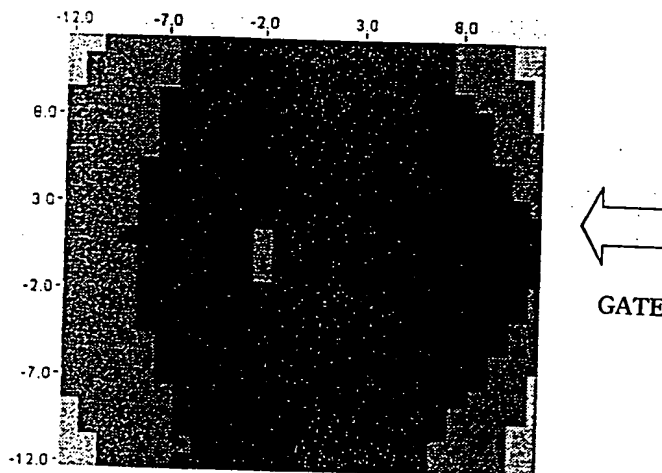


(b) NEEDLE-LIKE CALCIUM CARBONATE
CRYSTALS ADDED POLYMETHYL
METHACRYLATE

FIG. 14



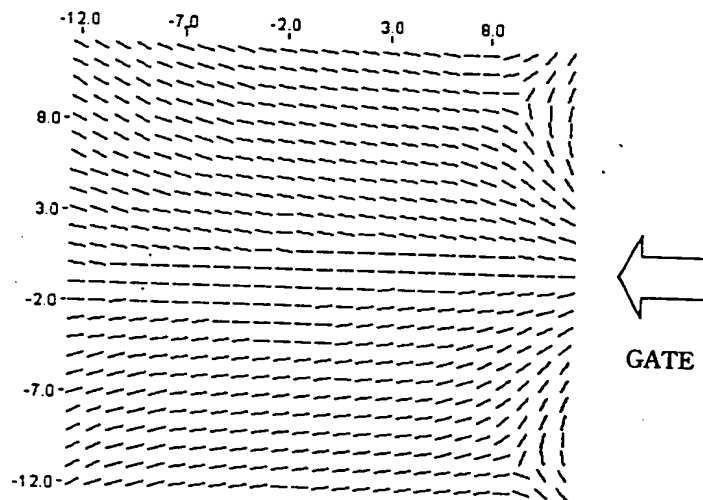
(a) POLYMETHYL METHACRYLATE



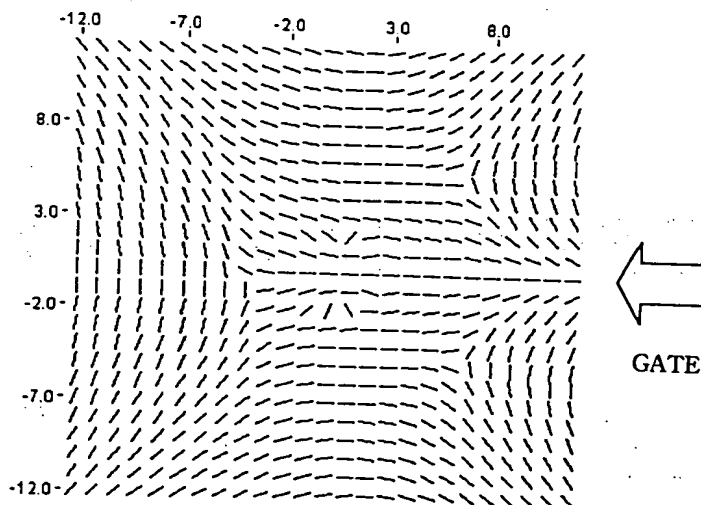
(b) NEEDLE-LIKE STRONTIUM CARBONATE
 CRYSTALS ADDED POLYMETHYL
 METHACRYLATE

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FIG. 15



(a) POLYMETHYL METHACRYLATE



(b) NEEDLE-LIKE STRONTIUM CARBONATE
CRYSTALS ADDED POLYMETHYL
METHACRYLATE

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FIG. 16

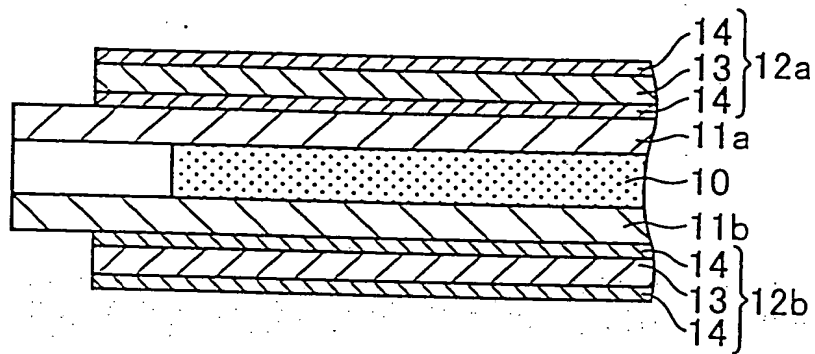


FIG. 17

